

TA-N7/N7B

TA-N7 (Panel: Silver)

AEP Model

UK Model

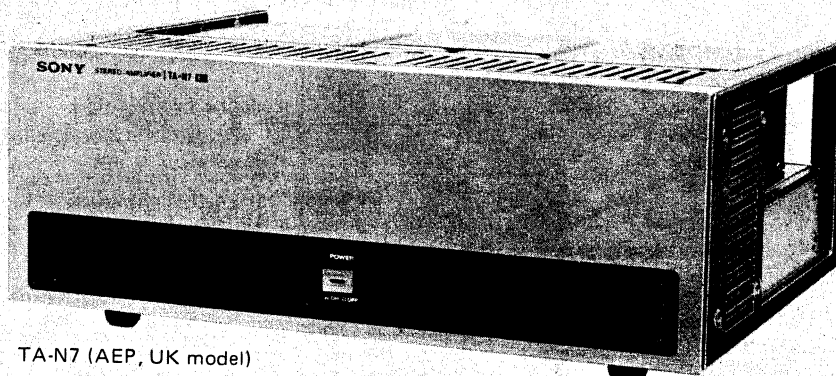
TA-N7B (Panel: Black)

AEP Model

UK Model

US Model

Canadian Model



TA-N7 (AEP, UK model)

STEREO POWER AMPLIFIER

SPECIFICATIONS

GENERAL


Power Requirements: 240V ac, 50/60Hz (UK model)
220V ac, 50/60Hz (AEP model)
120V ac, 60Hz (US, Canadian model)

Power Consumption: 480W (UK model)
420W (AEP model)
160W (US model)
350VA (Canadian model)


Dimensions: Approx.
430(W) x 170(h) x 335(d) mm
17(w) x 6½(h) x 13¼(d) inches
Including projecting parts and controls

Weight: (UK, AEP model)
Approx. 20.1kg, 44 lb 5 oz (net)
Approx. 22.6kg, 49 lb 14 oz
(with shipping carton)
(US, Canadian model)
Approx. 21kg, 46 lb 5 oz (net)
Approx. 23.6kg, 52 lb 1 oz
(with shipping carton)

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND  MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ !

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY.

—Continued on page 2—

SONY
SERVICE MANUAL

POWER AMPLIFIER SECTION

Continuous RMS Power Output: Both channels driven simultaneously
(Less than 0.01% THD) At 20–20,000 Hz
100W + 100W (8Ω)
According to DIN 45500 (AEP, UK model)
100W + 100W (8Ω)

Power Bandwidth: 5–35,000 Hz (8Ω), IHF (AEP, UK model)

Damping Factor: 100 (8Ω, 1kHz)

Harmonic Distortion: Less than 0.01% at rated output
Less than 0.008% at 1W/10W output

Less than 0.01% at 250mW—rated output
(US, Canadian model)

IM Distortion: Less than 0.01% at rated output
(60Hz: 7kHz = 4:1) Less than 0.008% at 1W/10W output

Frequency Response: DC–100,000Hz ± 1 dB (DIRECT INPUT)
6–100,000Hz ± 1 dB (C COUPLED INPUT)
Greater than 120 dB, short-circuited input

S/N Ratio: Greater than 120 dB, short-circuited input

Residual Noise: Less than 0.024mV (8Ω) weighting network A

Inputs:	Sensitivity	Impedance
DIRECT	1.3V (for rated output)	50kΩ
C COUPLED (3Hz cut-off frequency)		

Outputs: SPEAKER terminals:
Accept speakers of 8Ω or more

• MODEL IDENTIFICATIONS

– Specification Label –

AEP model (TA-N7)

SONY®	STEREO AMPLIFIER
	MODEL NO. TA-N7
	AC 220V ~ 50/60Hz 420W SERIAL NO. MADE IN

UK model (TA-N7)

SONY®	STEREO AMPLIFIER
	MODEL NO. TA-N7
	AC 240V ~ 50/60Hz 480W SERIAL NO. MADE IN

AEP model (TA-N7B)

SONY®	STEREO AMPLIFIER
	MODEL NO. TA-N7B
	AC 220V ~ 50/60Hz 420W SERIAL NO. MADE IN

UK model (TA-N7B)

SONY®	STEREO AMPLIFIER
	MODEL NO. TA-N7B
	AC 240V ~ 50/60Hz 480W SERIAL NO. MADE IN

US model (TA-N7B)

SONY®	STEREO AMPLIFIER
	MODEL NO. TA-N7B
	AC 120V 60Hz 160W SERIAL NO. MADE IN


Canadian model (TA-N7B)


SONY®	STEREO AMPLIFIER
	MODEL NO. TA-N7B
	AC 120V 60Hz 350VA SERIAL NO. MADE IN

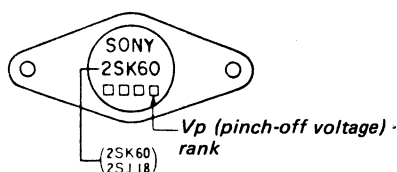
SERVICING NOTES

- This set uses bipolar transistors and V-FETs in cascade circuit to maintain stable biasing. When replacing the three P-channel V-FETs 2SK60 and/or the three N-channel V-FETs 2SJ18 in each channel, use three matched ones which have the same V_p (pinch-off voltage)-rank figure printed on them as shown below. The fluctuation of the V_p rank of the three can be acceptable on one-rank-difference basis.

- Two kinds of hexagonal-socket screw-drivers are required for the following removal.

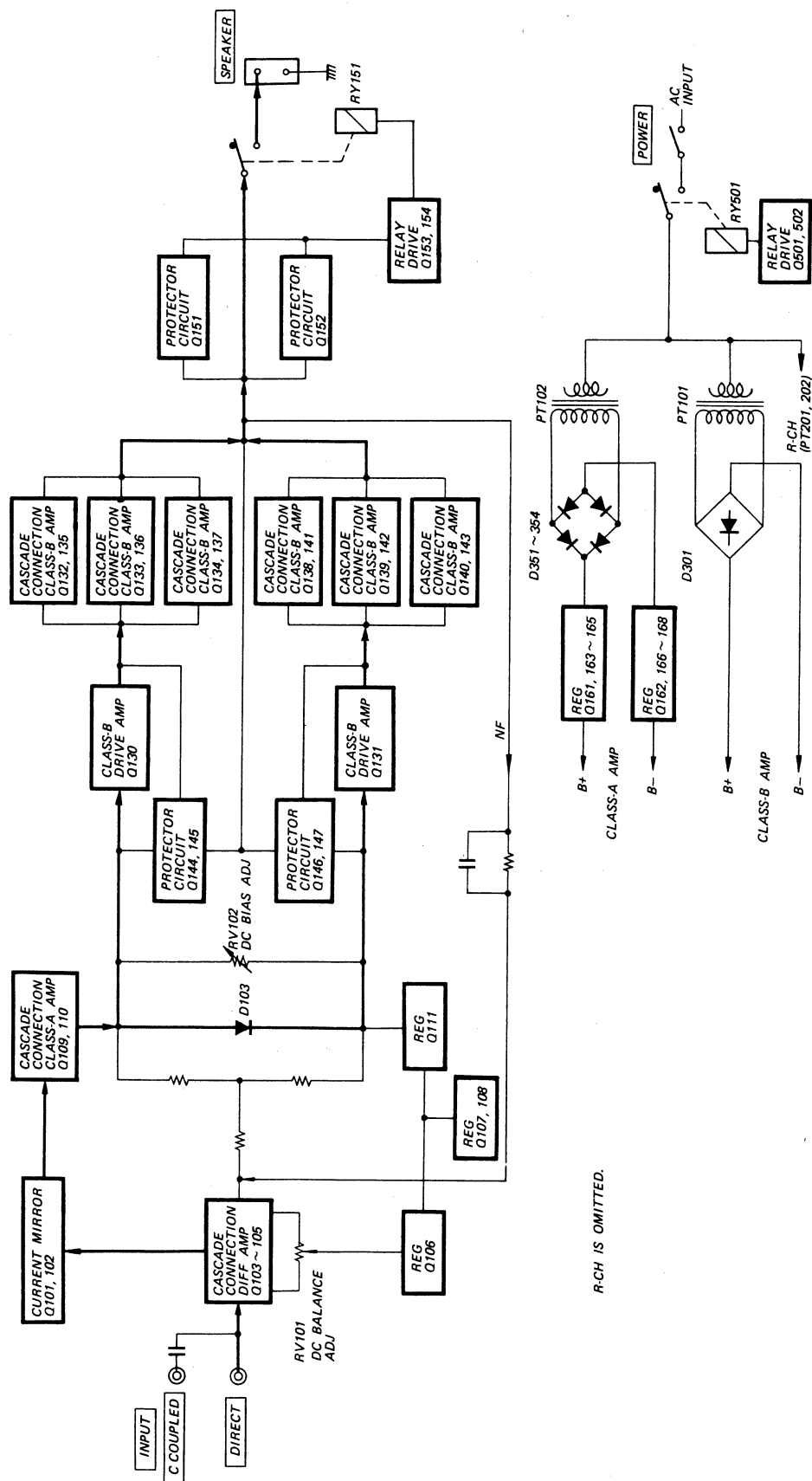
 2.5mm : top cover removal

 4mm : side plate removal



SECTION 1 OUTLINE

1-1. BLOCK DIAGRAM

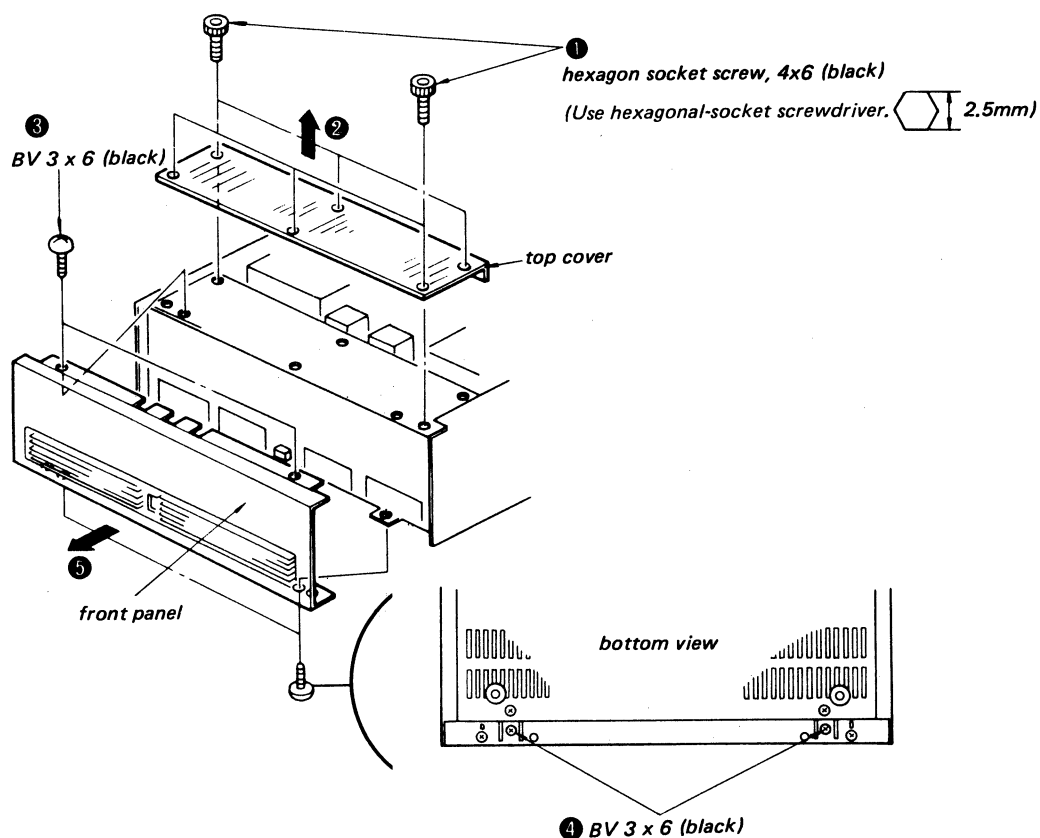


R-CH IS OMITTED.

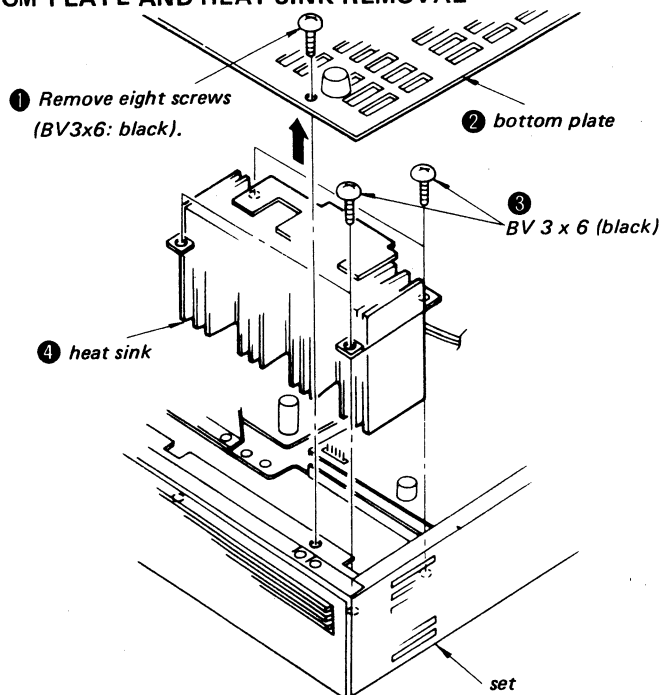
SECTION 2 DISASSEMBLY

Remove the parts in the numerical order.

FRONT PANEL REMOVAL



BOTTOM PLATE AND HEAT SINK REMOVAL



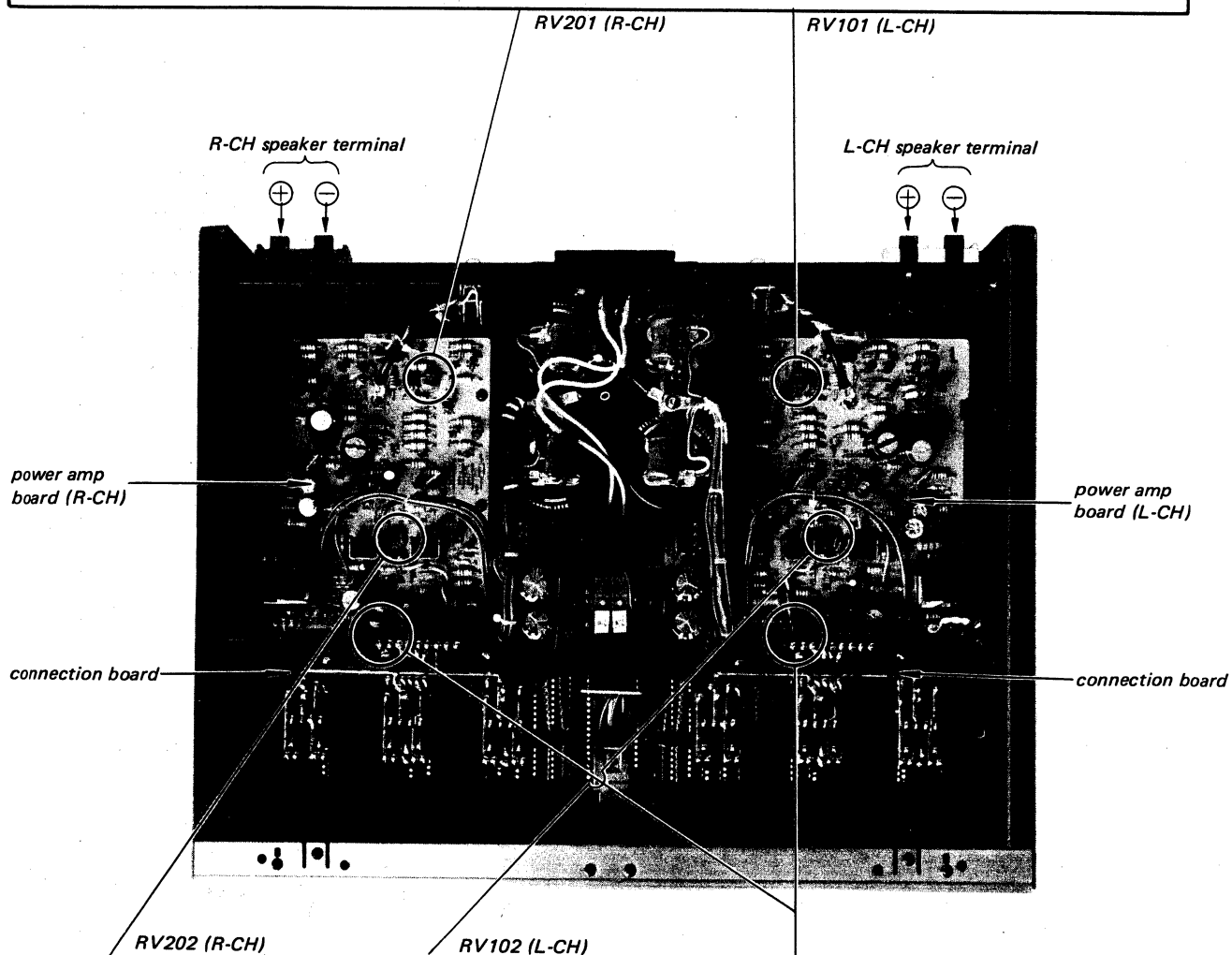
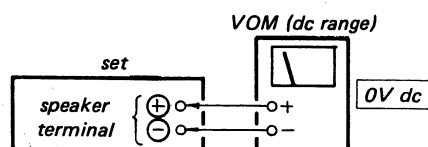
SECTION 3 ADJUSTMENT

Note:

1. Apply the rated ac line voltage to the set directly. Do not increase the voltage gradually by using a variable transformer or other such instrument; this will cause a V-FET failure.
2. Turn the set on and wait a few minutes for warm-up.
3. Alternately repeat the two adjustments 2 or 3 times.

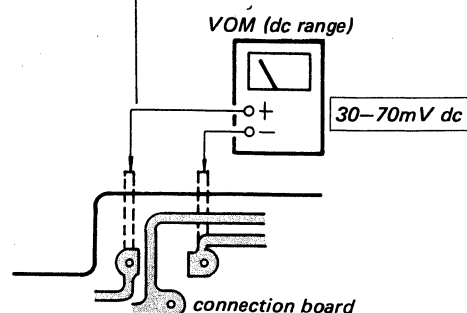
DC Balance Adjustment

Adjust RV101(L-CH) and RV201 (R-CH) for 0V dc with no signal input.



DC Bias Adjustment

Adjust RV102 (L-CH) and RV202 (R-CH) for 30–70 mV dc with no signal input.

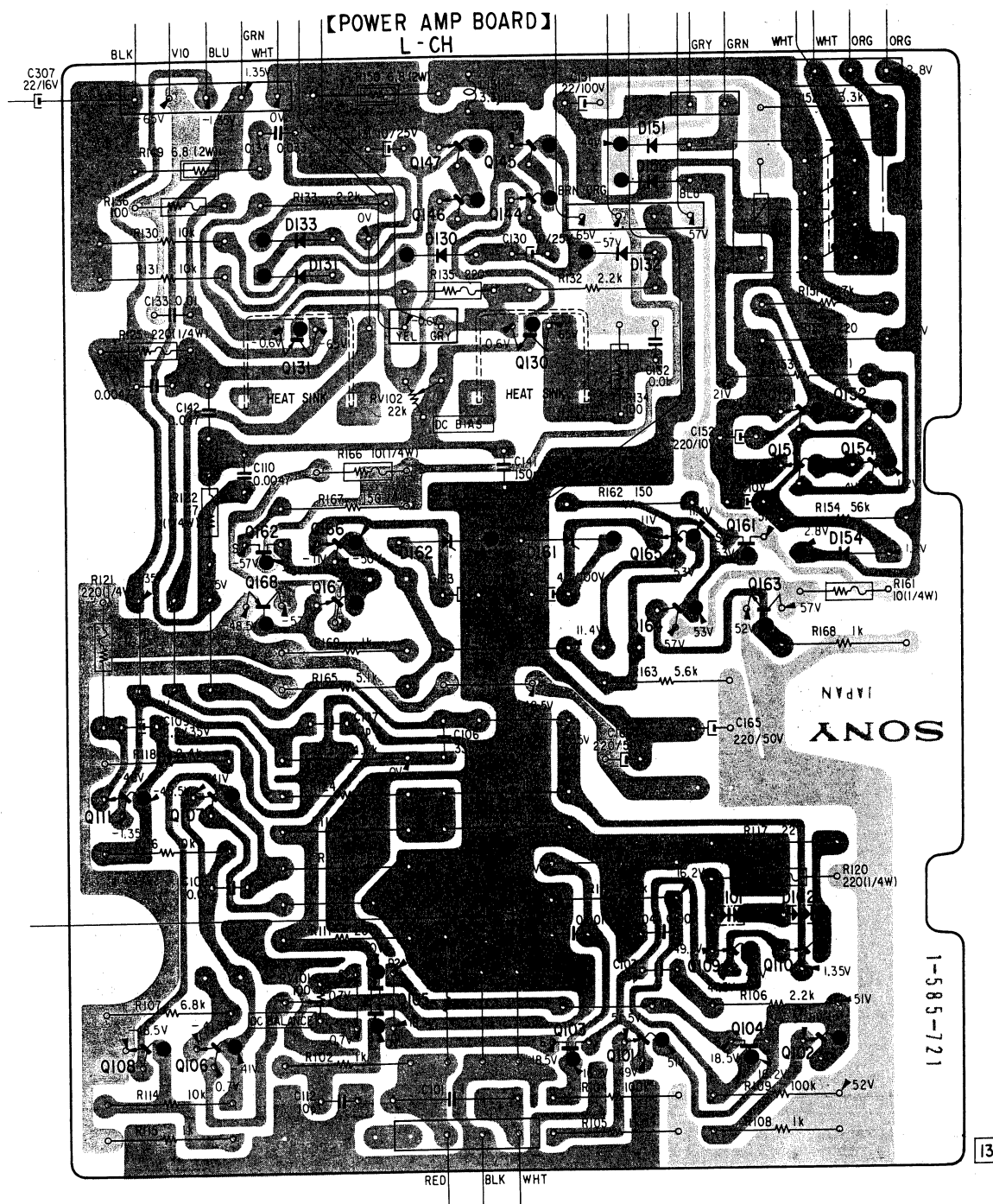


SECTION 4

DIAGRAMS

4-1. MOUNTING DIAGRAM – L-CH Power Amp Board – – Conductor Side –

- **Replacement Semiconductors:** See page 8.



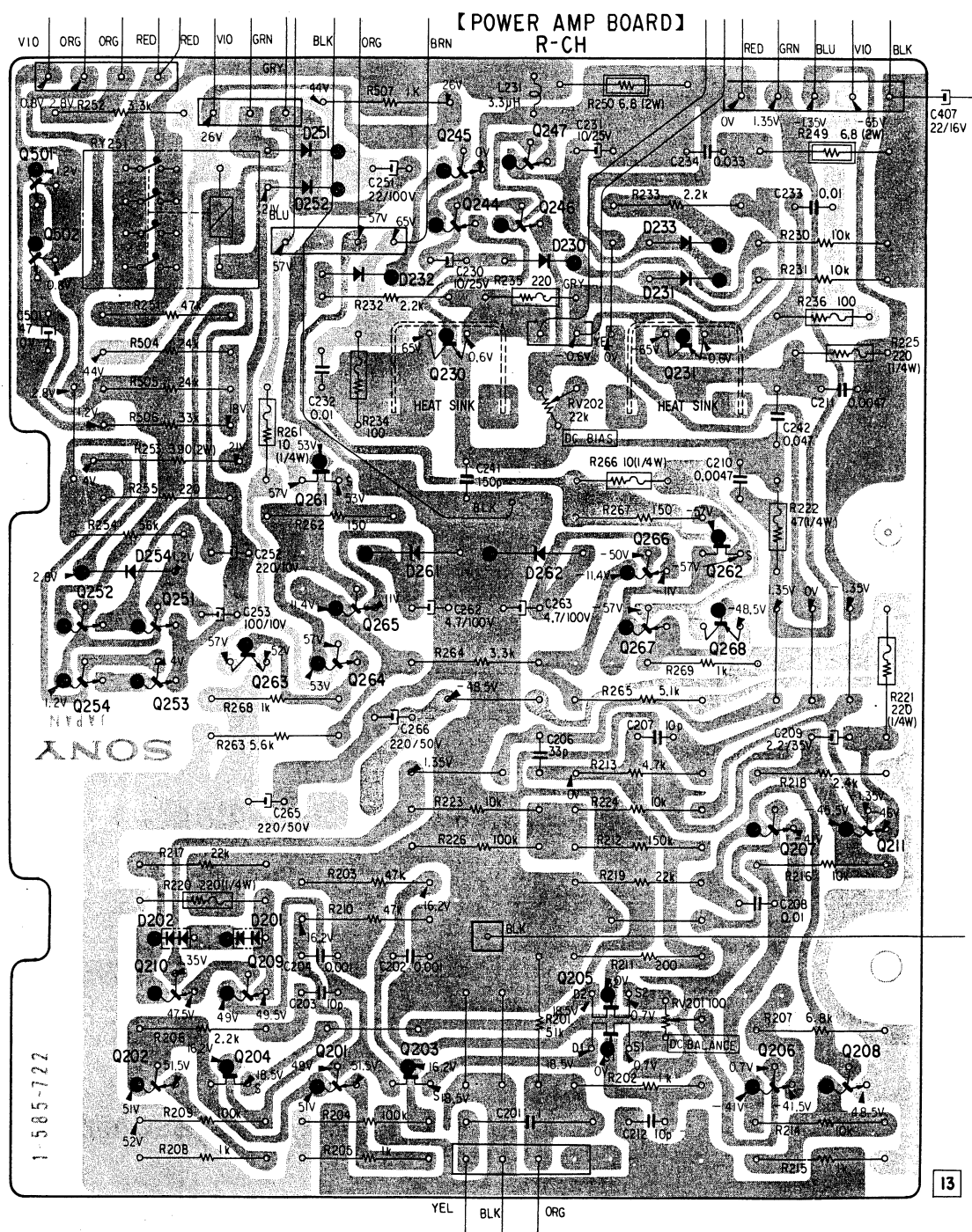
Q	III 108	107 106	162 168	131 167	166 105	147 146	145 144 130	103	101	165 164	161 109	163 104	151 153 110	152 154 102
D			133 131			130 162		161	132	151 152		101		102 154

-  : B + pattern
- : B - pattern
-  : nonflammable resistor
- : fusible resistor.

4-2. MOUNTING DIAGRAM – R-CH Power Amp Board –

– Conductor Side –

● Replacement Semiconductors: See page 8.



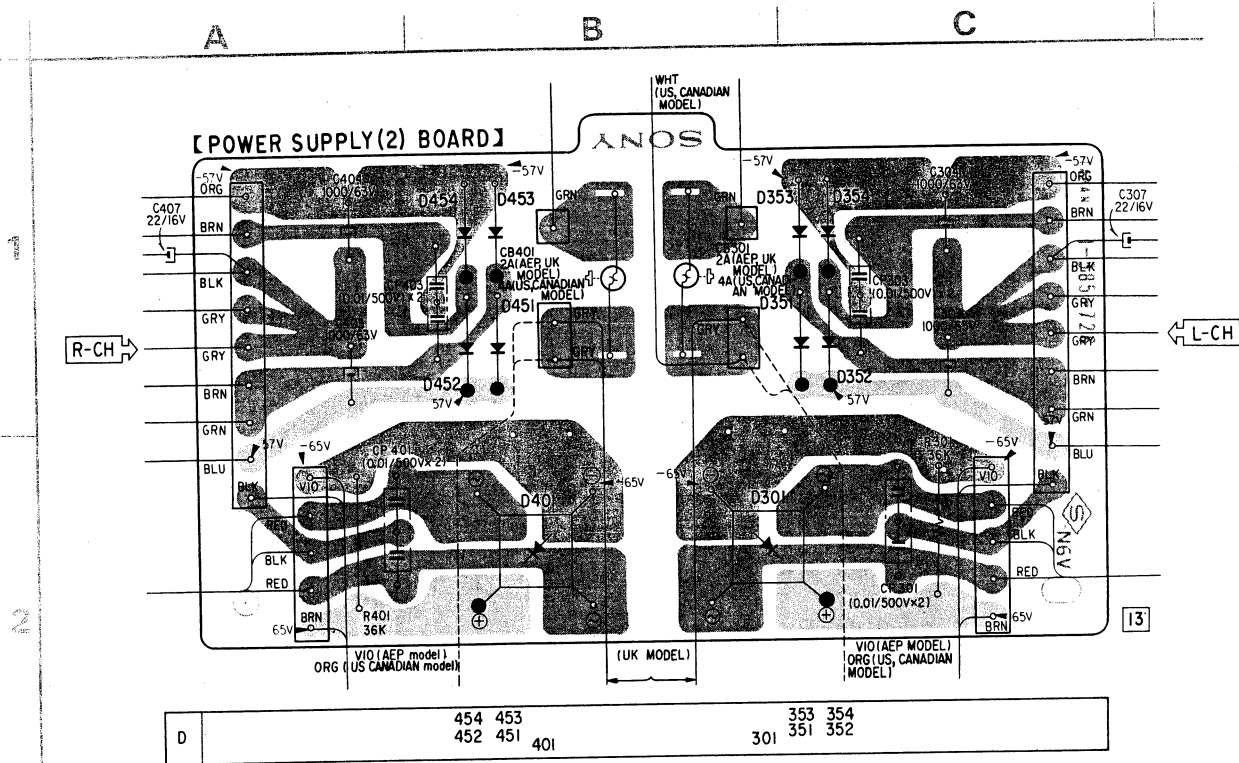
Q	501 502	252 254	251 253 202	210	204 209	263 209	261 264 201	265 203	245 244 230	247 246	266 205	231 267	262 268	207 206	211 208
D		254	202		201		251 252	232 261		230 262		233 231			

● : B+pattern

○ : B - pattern

● : nonflammable resistor

● : fusible resistor.



● Replacement Semiconductors

For replacement, use semiconductors except in ().

- Q101, 102, 144 }
147, 166, 167 } : 2SA678
201, 202, 244 }
247, 266, 267 }

- Q106-108 : 2SC926A
206-208

- Q131, 231: 2SA835**

- Q141-143 : 2SJ18
241-243

- D130-133 : 1S1555**
230-233

- $$\left. \begin{array}{l} \text{D151, 152} \\ 251, 252 \\ 351-354 \\ 451-454 \end{array} \right\} : 10\text{E2}$$

- D154, 254: 1T22AM
(1T22A)**

- Q103, 104 : 2SK30A**
203, 204

- Q145, 146, 151-154 }
245, 246, 251-254 } :2SC1364
A 164, 165, 264, 265 }
501, 502 }

- Q132-134 : 2SK60**

- Q161, 162 : 2SK42-2
261, 262

- D161, 162 : EQB01-11Z**
261, 262

- Q105, 205: 2SK97**

- (2SC634A)

- Q135-137 : 2SC1173**
235-237
Q163, 263 : 2SC1061

- D101, 102 : MV12N
201, 202

- Q109, 209: 2SA639S**

- Q111, 130 : 2SC 1962
211, 230

- Q138-140 : 2SA473**
238-240
Q168, 268 : 2SA671

- D103, 203: SV04S
(SV04F)**

- D301, 401: S5VB20**

- Q110, 210 : 2SA896**

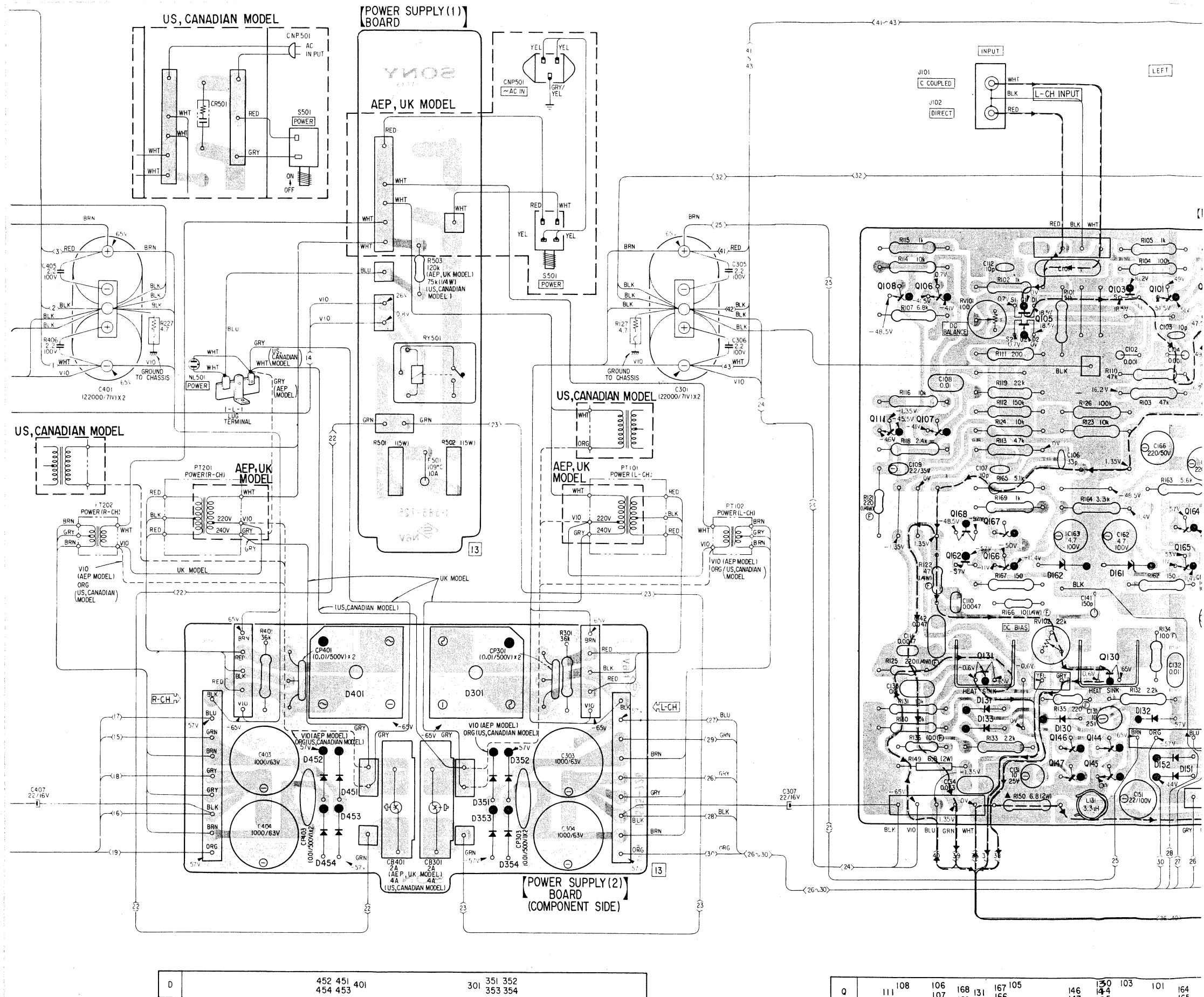
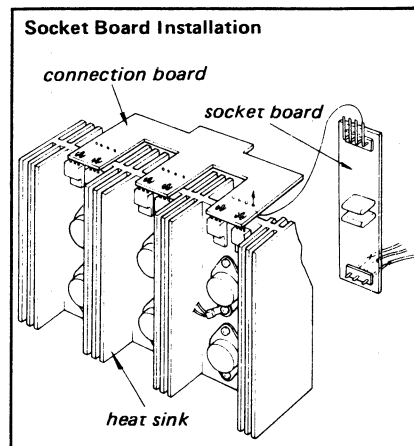
- Q138-140 : 2SA473**
238-240
Q168, 268 : 2SA671

4-4. MOUNTING DIAGRAM — L-CH Power Amp Board —
— Component Side —

Note.

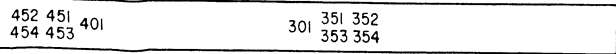
- : B + pattern
- —> : signal path
- ▲ : nonflammable resistor
- (F) : fusible resistor.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20k Ω /V).
- () : voltage variations according to the rank of V-FET.

power
amp
(R-CH)



D	452	451	401	301	351	352
	454	453		353	354	

Q	111	108	106	168	131	167	105	146	145	103	101	164
			107	162		166		147				165
D				131	133			162	130	161	132	152
												151



Q	111	108 107	106 162	168 131	167 166	105	146 147	130 144 145	103	101	164 165	109	104 161	163	102 110 153,151	154 152	134 143	137	140	136	133 142	139	135	132 141	138	Q
D				131 133			162 130		161	132	152 151	101			102	154										D
																				103						

4-5. MOUNTING DIAGRAM – R-CH Power Amp Board –
– Component Side –

● Replacement Semiconductors: See page 8.

● : B + pattern

● : signal path

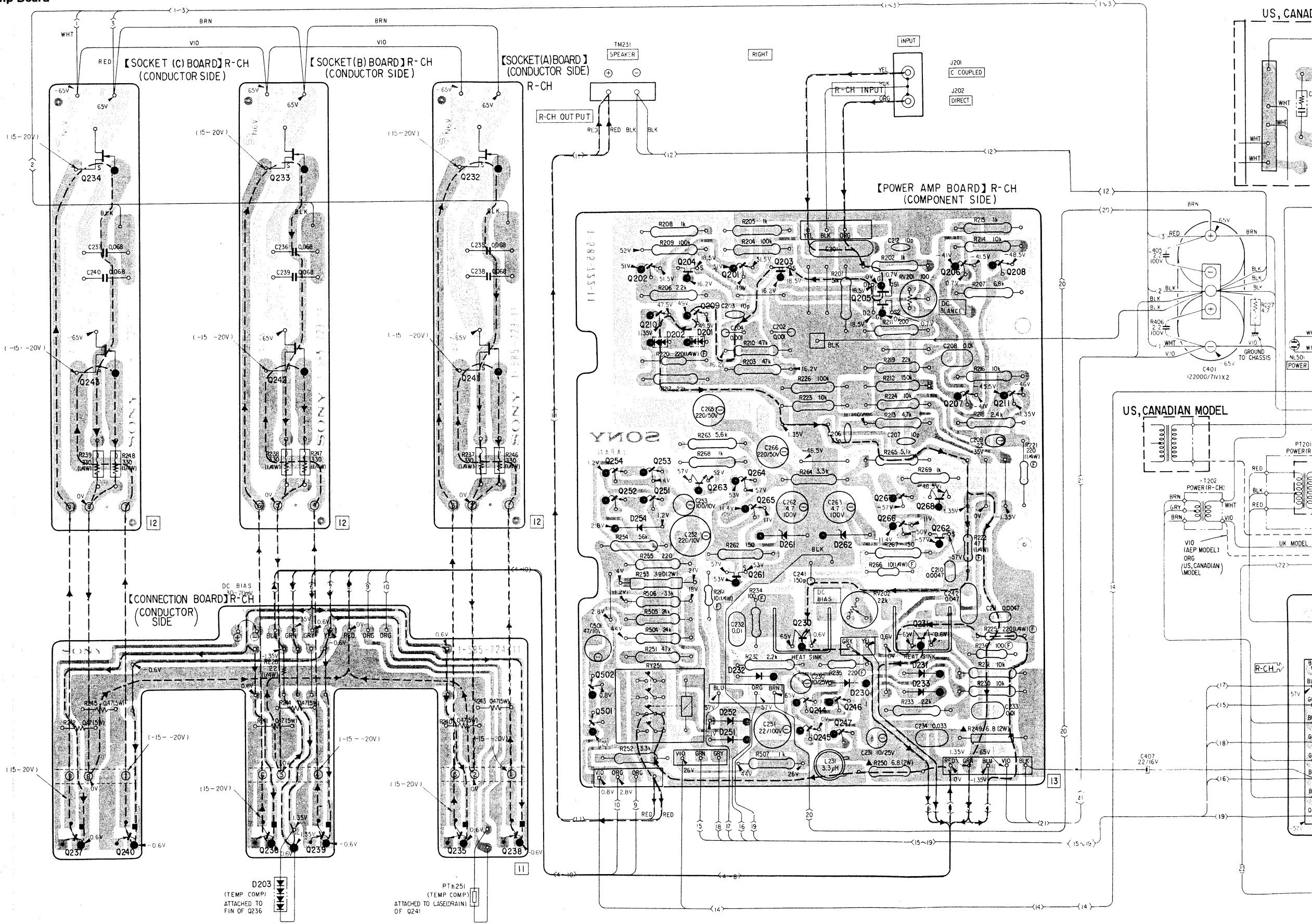
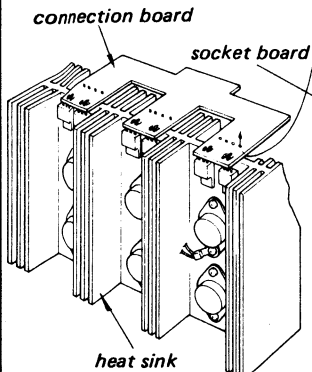
● : nonflammable resistor.

● (F) : fusible resistor.

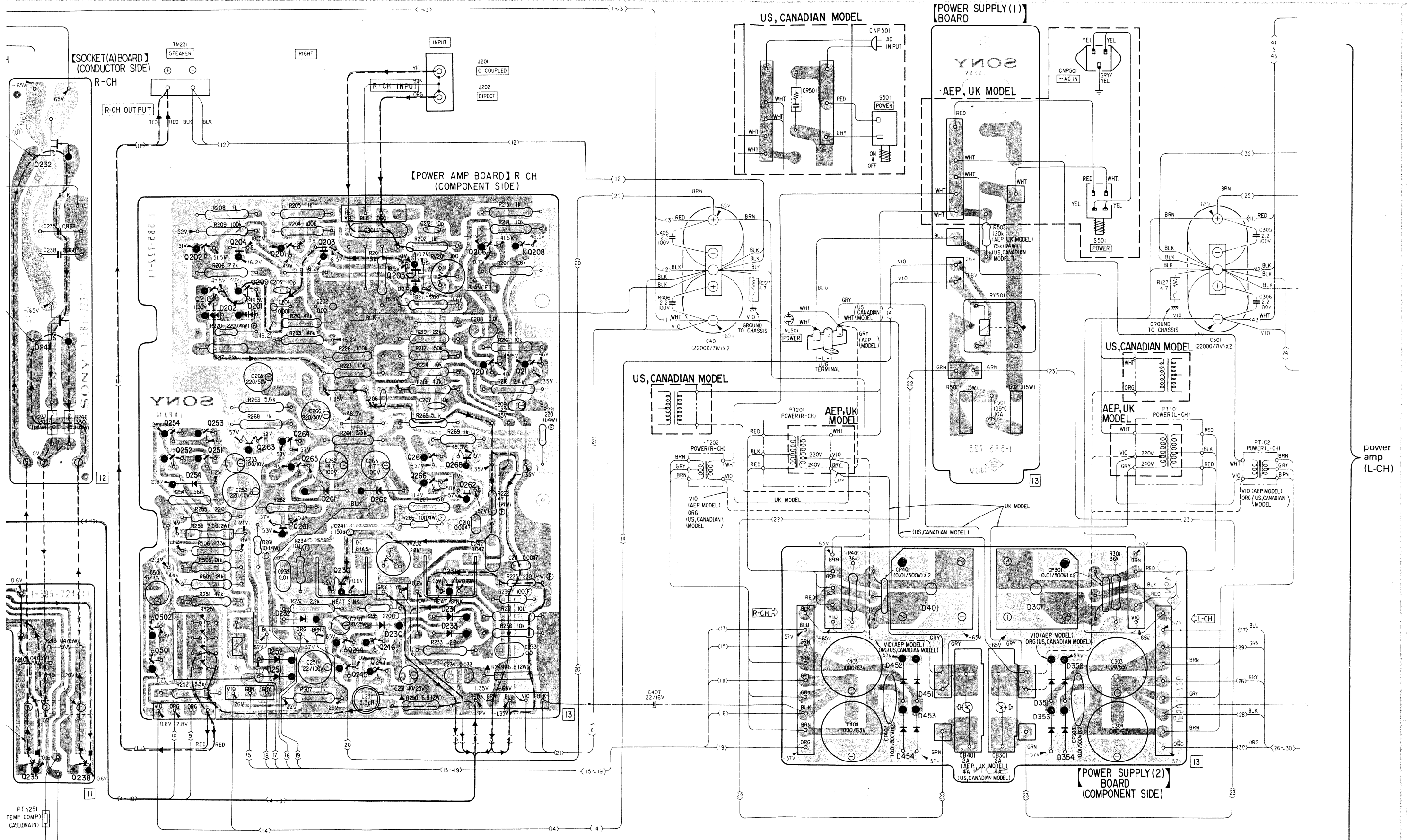
● Voltages are dc with respect to ground unless otherwise noted.

● Readings are taken under no signal conditions with a VOM (20kΩ/V).
() : voltage variations according to the rank of V-FET.


Socket Board Installation




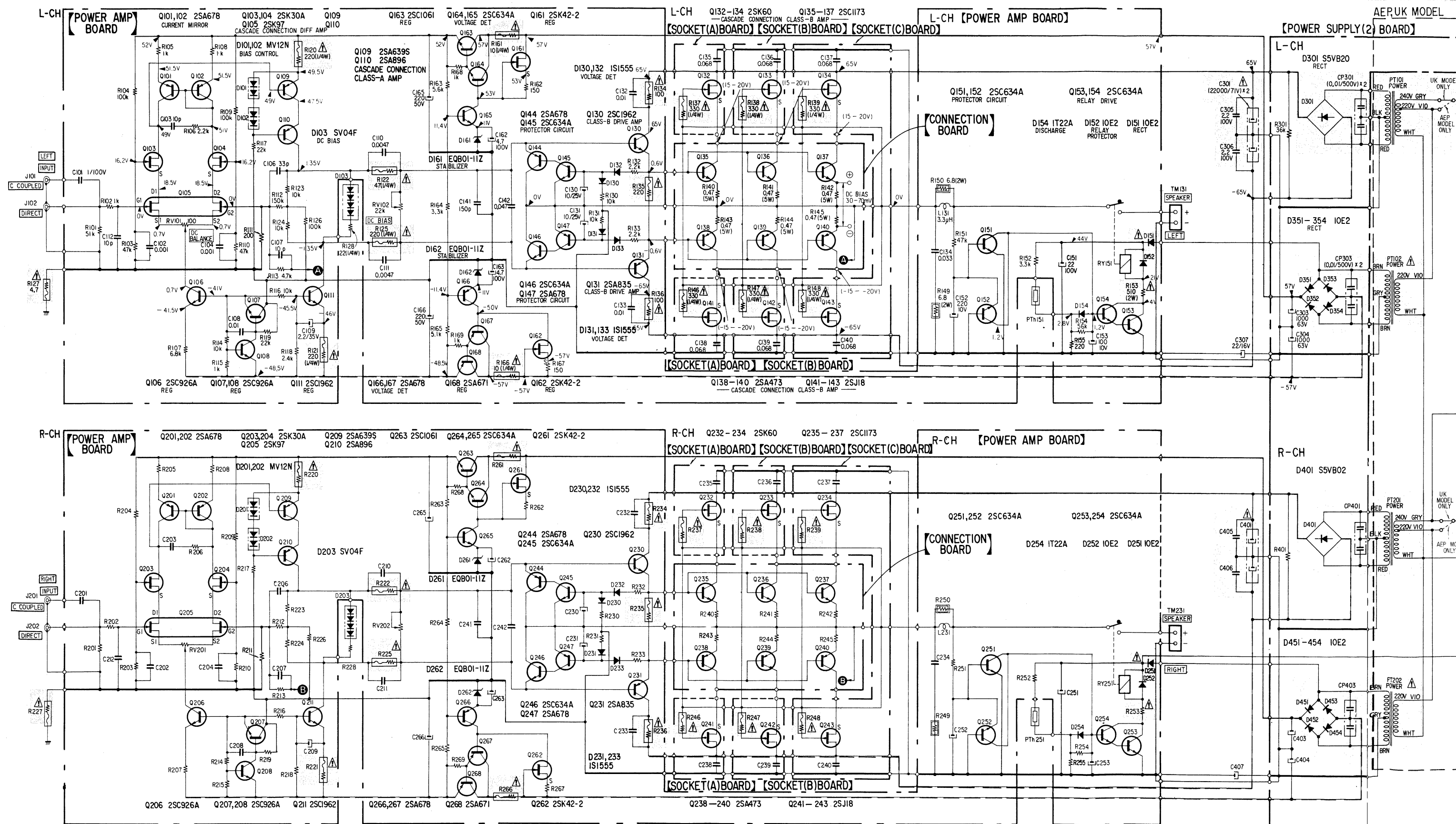
Q	237	234	240		233	242	239		232	241	238		502	252	210	209	261	201	265	203	230	244	246	205	267	231	268	206	208		Q
D		243			236								501		253	263	264	252	232	261	262	245	247		266	262	207		211		D
					203										254	202	201	252	232	261		262	230			231					

power
amp
(L-CH)

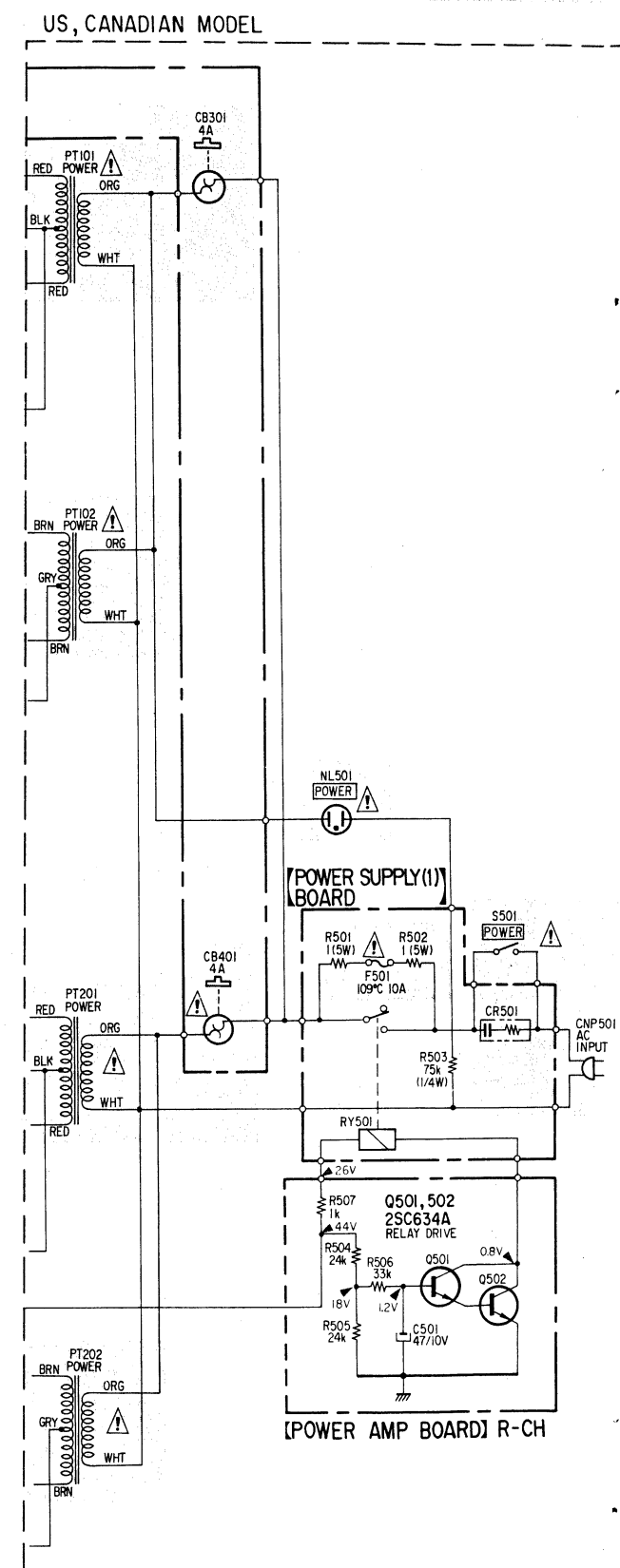
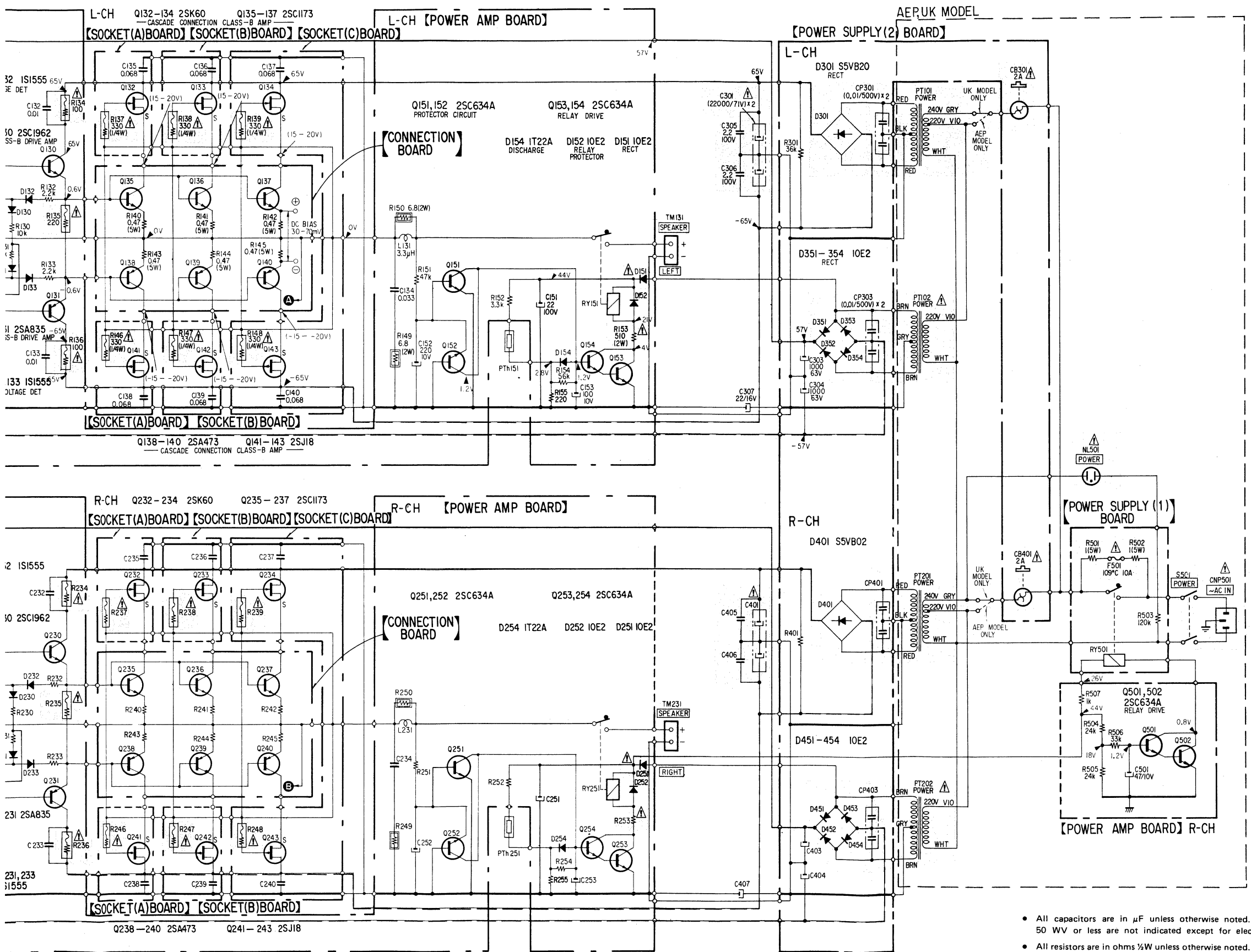
4-6. SCHEMATIC DIAGRAM

Note: The components identified by shading and  mark are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



Composants identifiés par un trame et une marque
critiques pour la sécurité. Ne les remplacer que par
un équivalent portant le numéro spécifié.



- All capacitors are in μF unless otherwise noted. $pF = \mu\mu F$. 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms $\frac{1}{2}W$ unless otherwise noted. $k\Omega = 1000\Omega$, $M\Omega = 1000k\Omega$.
- : nonflammable resistor.
- : fusible resistor.
- : B+ bus.
- : B- bus.
- : panel designation.
- : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no signal conditions with a VOM (20k Ω/V).
- () : voltage variations according to the rank of V-FET.
- Switch

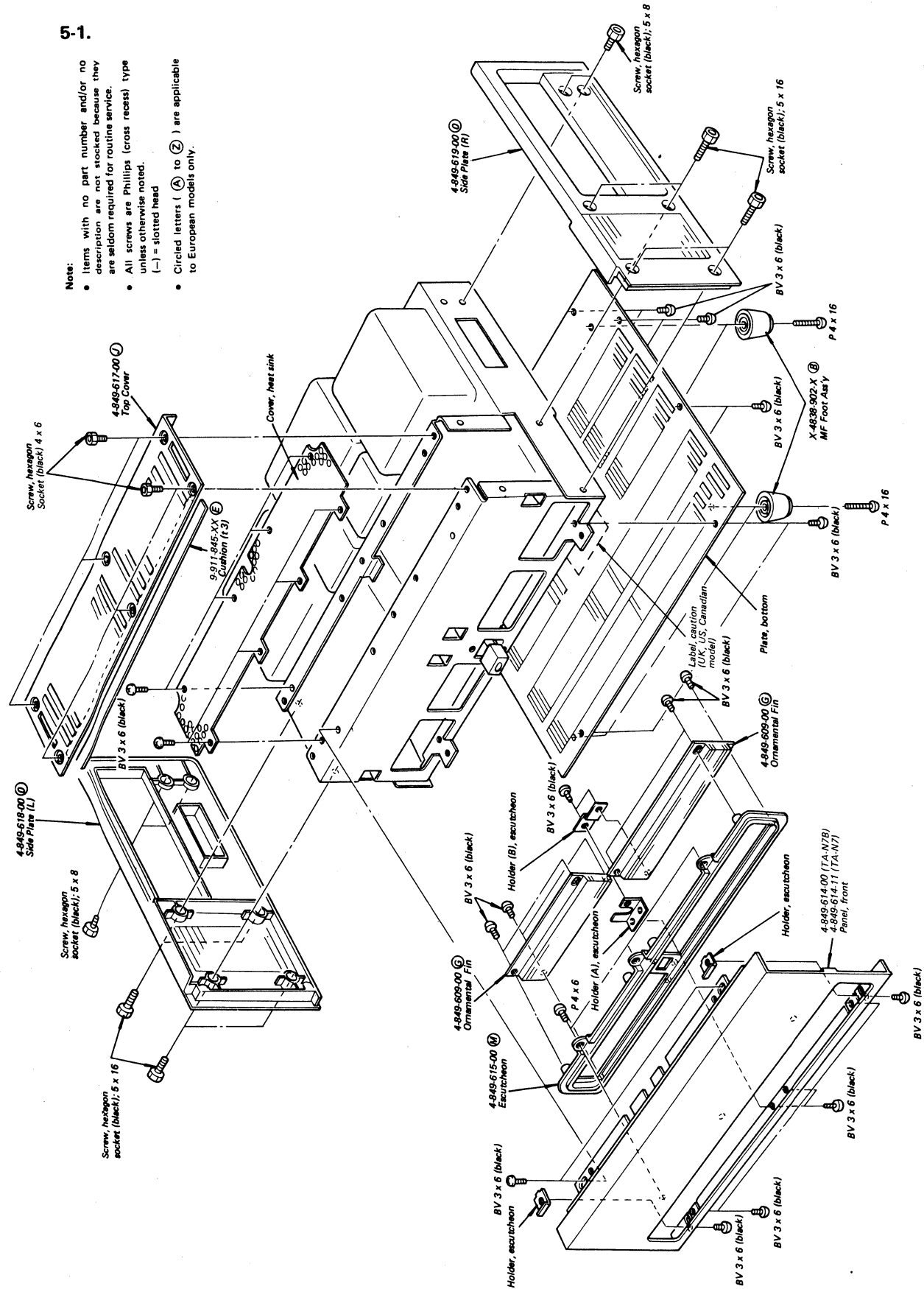
Ref. No.	Switch	Position
S501	POWER	OFF

SECTION 5

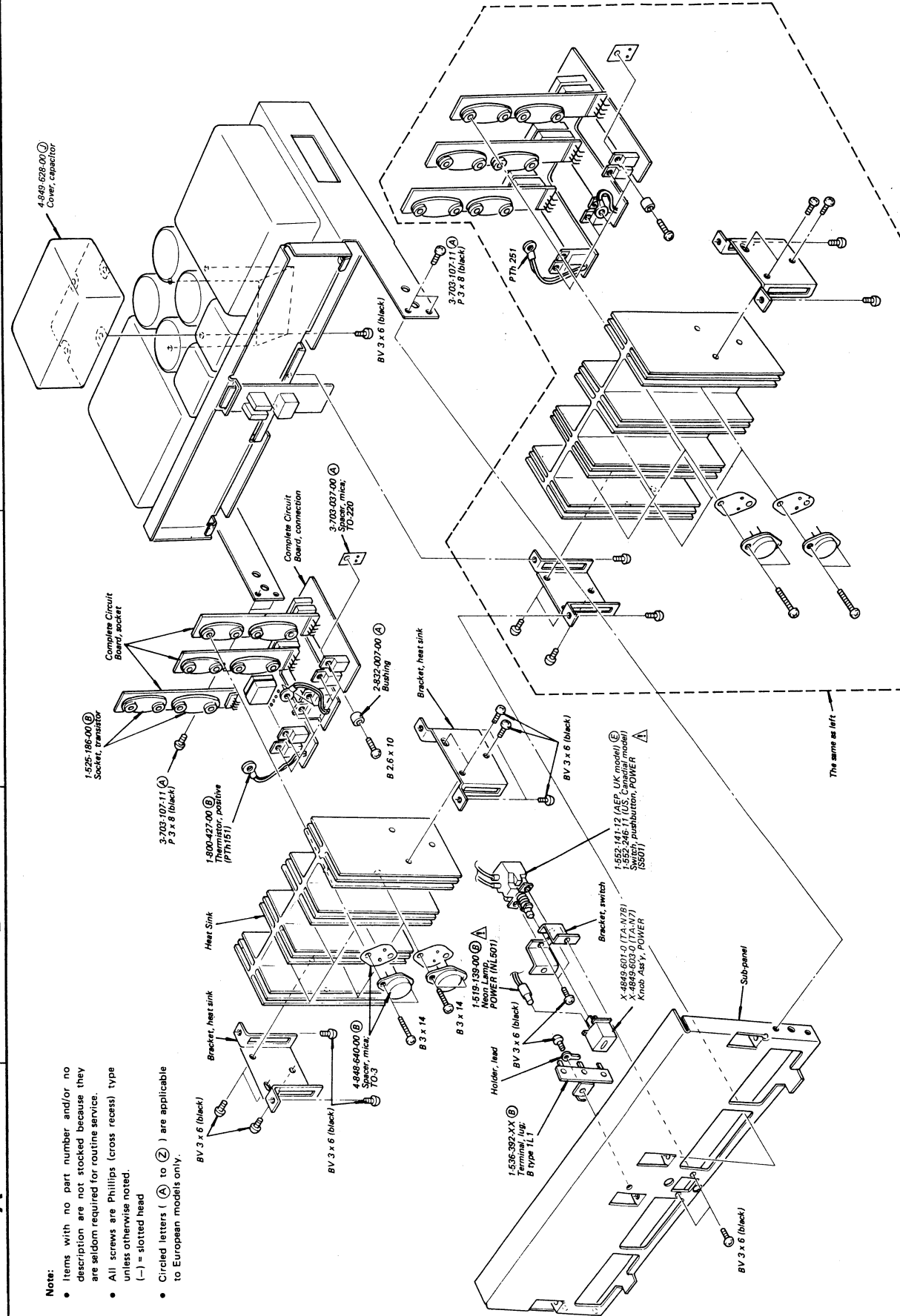
EXPLODED VIEWS

5-1.


- Notes:**
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
 - All screws are Phillips (cross recess) type unless otherwise noted.
(—) = slotted head
 - Circled letters (**A**) are applicable to European models only.



5-2.



Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

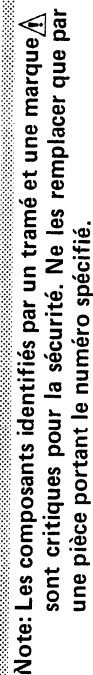
Note: Les composants identifiés par un tréma et une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


5-3.

1-535-195-21 (F)
Terminal Strip, 2P,
LEFT SPEAKER (TM131)

Note:
• Items with no part number and/or no

3.703.107.11 (A)



Note: The components identified by shading and  mark are critical for safety. Replace only with part number specified.

TA-N7/N7B

TA-N7/N7B

• Circled letters (A to Z) are applicable to European models only.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		
C134, 234	1-108-244-12	(A)	0.033	mylar
C135-140 C235-240	1-108-847-12	(A)	0.068	mylar
C141, 241	1-103-755-11	(A)	150p	polystyrol
C142, 242	1-108-246-12	(A)	0.047	mylar
C151, 251	1-123-081-11	(B)	22	100V elect
C152, 252	1-123-072-11	(B)	220	10V elect
C153, 253	1-123-196-11	(A)	100	10V elect
C162, 262 C163, 263	1-123-255-11	(B)	4.7	100V elect
C165, 265 C166, 266	1-121-423-11	(B)	220	50V elect
C301, 401	A1-125-151-11	(Q)	22000+22000	71V elect
C303, 403 C304, 404	1-123-262-11	(E)	1000	63V elect
C305, 405 C306, 406	A1-130-084-11	(D)	2.2	100V polyethylene
C307, 407	1-121-479-11	(A)	22	16V elect
C501	1-123-195-11	(A)	47	10V elect

RESISTORS

All resistors are in ohms and ½W carbon unless otherwise noted.

R101, 201	1-244-914-11	A	51k	
R102, 202	1-244-873-11	A	1k	
R103, 203	1-244-913-11	A	47k	
R104, 204	1-244-921-11	A	100k	
R105, 205	1-244-873-11	A	1k	
R106, 206	1-244-881-11	A	2.2k	
R107, 207	1-244-893-11	A	6.8k	
R108, 208	1-244-873-11	A	1k	
R109, 209	1-244-921-11	A	100k	
R110, 210	1-244-913-11	A	47k	
R111, 211	1-244-856-11	A	200	
R112, 212	1-244-925-11	A	150k	
R113, 213	1-244-889-11	A	4.7k	
R114, 214	1-244-897-11	A	10k	
R115, 215	1-244-873-11	A	1k	

Note: The components identified by shading and A mark are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description		
R116, 216	1-244-897-11	Ⓐ	10k	
R117, 217	1-244-905-11	Ⓐ	22k	
R118, 218	1-244-882-11	Ⓐ	2.4k	
R119, 219	1-244-905-11	Ⓐ	22k	
R120, 220	Ⓐ 1-212-889-11	Ⓐ	220	¼W fusible
R121, 221				
R122, 222	Ⓐ 1-212-873-11	Ⓐ	47	¼W fusible
R123, 223	1-244-897-11	Ⓐ	10k	
R124, 224				
R125, 225	Ⓐ 1-212-889-11	Ⓐ	220	¼W fusible
R126, 226	1-244-921-11	Ⓐ	100k	
R127, 227	Ⓐ 1-212-950-11	Ⓐ	4.7	½W fusible
R128, 228	1-244-633-11	Ⓐ	22	¼W
R130, 230	1-244-897-11	Ⓐ	10k	
R131, 231				
R132, 232	1-244-881-11	Ⓐ	2.2k	
R133, 233				
R134, 234	Ⓐ 1-212-982-11	Ⓐ	100	½W fusible
R135, 235	Ⓐ 1-212-990-11	Ⓐ	220	½W fusible
R136, 236	Ⓐ 1-212-982-11	Ⓐ	100	½W fusible
R137-139	Ⓐ 1-212-893-11	Ⓐ	330	¼W fusible
R237-239				
R140-145	1-217-158-11	Ⓐ	0.47	5W metal oxide
R240-245				
R146-148	Ⓐ 1-212-893-11	Ⓐ	330	¼W fusible
R246-248				
R149, 249	1-206-459-11	Ⓐ	6.8	2W metal oxide
R150, 250				
R151, 251	1-244-913-11	Ⓐ	47k	
R152, 252	1-244-885-11	Ⓐ	3.3k	
R153, 253	Ⓐ 1-206-657-11	Ⓐ	510	2W metal oxide
R154, 254	1-244-915-11	Ⓐ	56k	
R155, 255	1-244-857-11	Ⓐ	220	
R161, 261	Ⓐ 1-212-857-11	Ⓐ	10	¼W fusible
R162, 262	1-244-853-11	Ⓐ	150	
R163, 263	1-244-891-11	Ⓐ	5.6k	
R164, 264	1-244-885-11	Ⓐ	3.3k	
R165, 265	1-244-890-11	Ⓐ	5.1k	

Note: Les composants identifiés par un tramé et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		
R166, 266	Ⓐ 1-212-857-11	Ⓐ	10	¼W fusible
R167, 267	1-244-853-11	Ⓐ	150	
R168, 268) 1-244-873-11	Ⓐ	1k	
R169, 269				
R301, 401	1-244-910-11	Ⓐ	36k	
R501, 502	Ⓐ 1-217-160-11	Ⓑ	1	5W metal oxide
R503	(1-244-718-11	Ⓐ	75k	¼W (US, Canadian model)
	1-244-925-11		120k	
R504, 505	1-244-906-11	Ⓐ	24k	
R506	1-244-909-11	Ⓐ	33k	
R507	1-244-873-11	Ⓐ	1k	
RV101, 201	1-224-247-XX	Ⓒ	100	adjustable, DC balance
RV102, 202	1-224-253-XX	Ⓒ	22k	adjustable, DC bias

SWITCH

S501	A1-552-141-12	E	Pushbutton, POWER (AEP, UK model)
	A1-552-246-11		Pushbutton, POWER (US, Canadian model)

MISCELLANEOUS

CB301, 401	A1-532-523-11		Circuit Breaker, 4A (US, Canadian model)
	A1-532-531-11	C	Circuit Breaker, 2A (AEP, UK model)
CNP501	1-509-546-00	D	Socket, 3p AC IN (AEP, UK model)
	A1-551-421-11		Cord, power (US, Canadian model)
CP301, 303	A1-102-355-11	B	Encapsulated Component
CP401, 403			
CR501	A1-231-326-11		Encapsulated Component (US model)
	A1-231-341-00		Encapsulated Component (Canadian model)
F501	A1-532-496-00	C	Fuse, 109°C, 10A
J101, 201	1-507-378-21	B	Jack, 2p; C-COUPLED, DIRECT
J102, 202			
L131, 231	1-420-879-00	B	Coil, 3.3µH
NL501	A1-519-139-00	B	Neon Lamp, power
PT101, 201	A1-442-971-00		Transformer, power (US, Canadian model)
	A1-442-973-00	V	Transformer, power (AEP, UK model)
PT102, 202	A1-442-970-00		Transformer, power (US, Canadian model)
	A1-442-972-00	O	Transformer, power (AEP, UK model)
RY151, 251	1-515-293-00	H	Relay
RY501	1-515-278-00	F	Relay
TM131	1-535-195-21	F	Terminal Strip 2p; LEFT SPEAKER
TM231	1-535-195-31	F	Terminal Strip 2p; RIGHT SPEAKER
	1-525-186-00	B	Socket, transistor
	1-536-392-XX	B	Terminal, lug

Note: The components identified by shading and A mark are critical for safety. Replace only with part number specified.

• Circled letters (A to Z) are applicable to European models only.

ACCESSORIES & PACKING MATERIALS

Part No.	Description	
A1-534-819-12	G	Cord, power (UK model)
3-701-622-00	A	Bag, plastic (UK model)
3-701-630-00	A	Bag, plastic; printed matters
3-770-058-21		Manual, instruction (US model)
3-770-058-21		Manual, instruction (Canadian model)
3-794-245-31		
3-770-441-11	H	Manual, instruction (AEP, UK model)
4-848-648-00	B	Bag, protection; set
4-849-622-00	C	Cushion (A)
4-849-623-00	C	Cushion (B)
4-849-637-00	F	Carton (TA-N7)
4-849-638-00	C	Spacer
4-849-639-00	C	Cushion, lower
4-849-643-00	G	Carton (TA-N7B)

Note: Les composants identifiés par un tramé et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.